

Amendment under 37 CFR § 1.111  
Application No. 09/783,598  
Attorney Docket No. 010153

## REMARKS

### Rejections under 35 USC §103(a)

**Claims 1-3 and 5 were rejected under 35 USC §103(a) as being obvious over Beilin et al. (U.S. Patent No. 5,916,453) in view of Albrecht et al. (U.S. Patent No. 4,968,585).**

Applicants respectfully traverse the rejection.

Admitting that Beilin et al does not disclose the post being formed by anisotropically etched silicon, the Examiner alleged that it would have been obvious to have the post formed by anisotropically etched silicon as taught by Albrecht et al employed in the substrate of Beilin et al in order to achieve a fine pitch interconnection applied in a high density interconnection of a wiring board or a multilayer substrate.

Beilin et al discloses methods of planarizing structures on wafers and substrated by polishing. Beilin et al describes in the relevant portion as follows:

Referring to FIG. 14, photosensitive layer 112 is removed, and a new photosensitive layer 116 is formed over polish-stop layer 122 to form a composite layer comprising planarizing layer 120, polish-stop layer 122, and photosensitive layer 116. A plurality of apertures 117 are then formed through the composite layer. Apertures 117 are most readily formed by first pattern exposing photosensitive layer 116 to actinic radiation (for example UV light), developing layer 116, and then using layer 116 as an etch mask to transfer the pattern of apertures in layer 116 to layer 120 by a suitable etching process. An anisotropic etching process is preferred, such as for example plasma assisted etching processes. Reactive ion etching (RIE) is one preferred etching process. . . . .

(Col. 6, lines 7-18). Beilin et al also describes as follows:

**Once apertures 117 are formed, they may be filled with material to form post 118 as shown in FIG. 15 with the deposition processes** described above with respect to the first generalized embodiment of the present invention. Thereafter, photosensitive layer 116 is removed, as shown in FIG. 16, and the resulting structure is polished, as shown in FIG. 17. . . . .

(Col. 6, lines 53-59). According to Beilin et al, the post 118 must be made by deposition processes. Nothing indicates that the post 118 can be made of anisotropically etched silicon.

Albrecht et al discloses a microfabricated cantilever stylus with integrated conical tip.

The abstract of Albrecht describes as follows:

A cantilever stylus with an integrally formed conical tip is provided for atomic force microscopy AFM. The method for forming a stylus includes forming a circular masking pattern [14] on the surface of a silicon substrate and anisotropically etching the silicon to form a post [18] under the masking pattern. [See Figs2-3.] The post [18] is then isotropically etched to produce a conical silicon tip mold. [See Fig. 4.] In one embodiment of the invention the silicon substrate and the conical silicon tip mold are thermally oxidized to form a cantilever stylus having including a cantilever arm with a conical tip fixed to its free end. In another embodiment of the invention the silicon substrate and the conical silicon tip mold are coated with a thin film of a dielectric material to form a cantilever stylus with a conical tip. In this embodiment the backside of the stylus is coated with a conductive material and a strong electric field is applied to the tip to cause electromigration of the conductive material to the point of the tip.

(References to drawings added). The microfabricated cantilever stylus of Albrecht et al has nothing to do with the “posts being anisotropically etched silicon” recited in claim 1. Moreover,

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nothing in Albrecht et al indicates that the microfabricated cantilever stylus can be related to the front-and-back electrically conductive substrate as recited in claim 1.

Although the Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness, the Office Action has not established a *prima facie* case of obviousness. The MPEP explains as follows:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

MPEP 2143. These requirements for establishing *prima facie* case of obviousness can be rearranged in a more logical order as follows: (1) the prior art reference (or references when combined) must teach or suggest **all the claim limitations**; (2) there must be some **suggestion or motivation** either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (3) there must be a **reasonable expectation of success**.

**The rejection meets none of these requirements.** Even assuming, *arguendo*, that the microfabricated cantilever stylus of Albrecht et al somewhat corresponds to the “posts being

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anisotropically etched silicon,” the Office Action does not show suggestion or motivation to modify the reference to combine reference teachings and reasonable expectation of success.

Regarding the suggestion or motivation, the MPEP explains as follows:

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). . . .

MPEP 2143.01 I. Moreover, the Office Action has not shown that the prior art suggests desirability of the combination. The MPEP explains as follows:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground

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surface of varying slope not suggested by combination of prior art references).

MPEP 2143.01 III.

For at least these reasons, the Office Action has not established prima facie case of obviousness, and claim 1 patentably distinguishes over Beilin et al and Albrecht et al. Claims 2, 3 and 5, depending from claim 1, also patentably distinguish over Beilin et al and Albrecht et al for at least the same reasons.

Thus, the 35 USC §103(a) rejection should be withdrawn.

**Claims 4 and 6 are rejected under 35 USC §103(a) as being obvious over Beilin et al. (U.S. Patent No. 5,916,453) in view of Albecht et al. (U.S. Patent No. 4,968,585) and further in view of Onishi et al. (U.S. Patent No. 5,459,368).**

Applicants respectfully traverse the rejection.

As discussed above, claim1 patentably distinguishes over Beilin et al and Albrecht et al. Claims 4 and 6 depend from claim 1. Therefore, claims 4 and 6 also patentably distinguish over Beilin et al and Albrecht et al for at least the same reasons.

Thus, the 35 USC §103(a) rejection should be withdrawn.

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In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

**WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP**



Sadao Kinashi

Attorney for Applicants  
Registration No. 48,075  
Telephone: (202) 822-1100  
Facsimile: (202) 822-1111

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